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Comments of H2Diesel Holdings, Inc.  
Proposed Regulations and Amendments to 310 CMR 7.70 (CO<sub>2</sub>)  
Carbon Dioxide Budget Trading Program

H2Diesel Holdings, Inc., a developer and manufacturer of biofuels, appreciates the opportunity to comment on the Massachusetts Department of Environmental Protection's (Department) proposed regulations implementing the Carbon Dioxide (CO<sub>2</sub>) Budget Trading Program. H2Diesel directs these comments at ambiguities in the definition of "eligible biomass" and at those provisions awarding offset allowances for entities that switch to less carbon-intensive fuels.

**I. Description of H2Diesel**

Formed last year, H2Diesel has the proprietary rights to a new technology for the manufacture of a biofuel from renewable vegetable oils and animal fats. H2Diesel's plans call for the joint development of its first commercial scale production plant at Twin Rivers Technologies in Quincy, MA in 2008. From that plant, H2Diesel hopes to provide to both power generation facilities and commercial and residential boilers in and around Massachusetts a new renewable fuel that can substantially reduce their greenhouse gas emissions. This rulemaking is vitally important to the success of that first production facility.

Traditional biofuels are typically produced using energy-intensive processes. H2Diesel avoids the energy losses in the base fuel inputs by using a simple blending process instead. H2Diesel's new manufacturing process produces several benefits over traditional biofuels. In particular, H2Diesel's biofuel: 1) requires less energy input and hence lowers the net CO<sub>2</sub> emissions per unit of energy ; and 2) does not require blending with traditional fuels derived from petroleum.

**II. Comment on the Proposed Regulations**

The willingness of a small business like H2Diesel to invest in the research and development of climate-friendly technologies turns on regulatory initiatives – such as the RGGI program – that level the marketplace by imposing a cost on the emission of CO<sub>2</sub>

and a corresponding benefit on measures that offset additional CO<sub>2</sub> emissions. For companies such as H2Diesel to feel confident in making these investments, however, they must be certain about how regulators will treat the technology in which they are investing. Doubt as to whether and to what extent the use of a new technology will be eligible for offset allowances introduces risk into the equation, posing a significant barrier to investment.

For this reason, H2Diesel makes three requests:

- 1) The Department should resolve ambiguities in the definition of “eligible biomass” in way that furthers the proposed regulations’ overriding purpose of reducing CO<sub>2</sub> emissions.
- 2) The Department should clarify the meaning of the phrase “renewable fuel” in proposed regulation 310 CMR 7.70(10)(e)4.a.i(vii) and do so in broad fashion that leaves room for emergent CO<sub>2</sub> reducing technologies employing processes and feedstocks not currently in common use.
- 3) The Department should set forth a methodology by which a party that has reduced its CO<sub>2</sub> emissions by switching to a renewable fuel can claim offset allowances for those emissions reductions.

*a. Interpret “eligible biomass” in way that furthers the purpose of the CO<sub>2</sub> Budget Trading Program*

H2Diesel plans to use a wide range of natural renewable feedstocks for the production of its biofuel. The proposed regulations, however, provide little guidance in predicting which of these feedstocks will qualify as “eligible biomass.” 310 CMR 7.70(1)(b). Specifically, the definition of eligible biomass includes fuels derived from “dedicated energy crops,” a term that neither is defined in the proposed regulations nor possesses a commonly agreed upon meaning.

In deciding how to resolve this ambiguous phrase, the Department should look to the overriding purpose of the CO<sub>2</sub> Budget Trading Program: reducing CO<sub>2</sub> emissions. With that purpose in mind, an agricultural crop should qualify as an energy crop so long it has been converted into a liquid fuel that, on a life-cycle basis, produces substantially fewer CO<sub>2</sub> emissions than the fossil fuel it replaces. Such an approach would be entirely consistent with the definition of eligible biomass used by Massachusetts for purposes of its Renewable Portfolio Standard, which includes biodiesel, a product that uses the very same range of feedstocks that H2Diesel will use. *See* 225 CMR 14.02.

For the Department to focus its time and attention instead on the abstract – and necessarily arbitrary – question whether energy production is the crop’s exclusive purpose would be to take its eye off the ball. Such an approach could well end up including inefficient crops and excluding efficient ones. Moreover, using an exclusive-

purpose test would stifle innovation by restricting, from the outset, the range of feedstocks and processes with which companies would be willing to experiment.

*b. Define the term “renewable fuels” broadly*

The proposed regulations award CO<sub>2</sub> offset allowances for “avoidance of CO<sub>2</sub> emissions from natural gas, oil, or propane end-use combustion due to end-use energy efficiency.” 310 CMR 7.7(10)(e)4 (proposed). One of the measures eligible for such offset allowances is: “Fuel switching to a less carbon-intensive fuel for use in combustion systems, including the use of liquid or gaseous renewable fuels, provided that conversions to electricity are not eligible.” 310 CMR 7.7(10)(e)4.a.i(vii) (proposed). This provision quite clearly endorses awarding offset allowances to, for example, commercial building owners who replace the distillate fuel oil in their boilers with renewable fuels. Awarding offset allowances in such cases makes perfect sense: the CO<sub>2</sub> reductions resulting from fuel-switching are real, additional, verifiable, enforceable, and permanent. Moreover, there is no difference between a ton of CO<sub>2</sub> saved by fuel switching and a ton saved by other means, such as improvements to the efficiency of combustion equipment. Thus, for the sake of technological neutrality, fuel-switching should be treated the same way under the CO<sub>2</sub> Budget Trading System as other improvements that reduce CO<sub>2</sub> emissions generated in the process of heating buildings.

Yet, despite the proposed text of 310 CMR 7.7(10)(e)4.a and the sound reasons underlying it, the remainder of the proposed regulations do not clearly specify how one can receive offset allowances for switching to renewable fuels. To begin with, the proposed regulations nowhere define “renewable fuels.” H2Diesel proposes that the Department add to the regulations a broad definition for “renewable fuels” that leaves room for emergent CO<sub>2</sub> reducing technologies employing processes and feedstocks not currently in common use. H2Diesel proposes the following definition based on the renewable portfolio standard regulations from the state of New Jersey, N.J. ADMIN. CODE § 14:8-2.2:

“Renewable fuel” means a fuel that is naturally regenerated over a short time scale and is either derived from the sun (such as thermal, photochemical or photoelectric), or from other natural sources such as wind, hydropower, geothermal, tidal energy, photosynthetic energy stored in biomass, other products and byproducts from plants, or animal byproducts. This term does not include a fossil fuel, a waste product from a fossil source, or a waste product from an inorganic source.

H2Diesel would like to stress that, whatever definition of “renewable fuels” the Department selects, the Department should take care not to exclude inadvertently any fuels, such as H2Diesel’s, that yield substantial net CO<sub>2</sub> reductions. The federal definition of “renewable fuels” – as an example of what not to do – was designed with motor vehicles in mind and as a result relies in part on the ASTM International standard

definition of biodiesel (ASTM D 6751). ASTM D 6751 contains specifications tailored to the needs of one specific product and has no bearing on carbon-intensity or any other concern relevant to the design of climate change policy.

*b. Create a methodology that awards offset allowances to parties who reduce CO<sub>2</sub> emissions by switching to renewable fuels*

The proposed regulations also fail to articulate a methodology that would allow building owners to claim offset allowances for switching to less carbon-intensive fuels. Indeed, although the proposed rule expressly recognizes switching to less carbon-intensive, renewable fuels as an appropriate source of offsets, the provision entitled “Calculating emissions reductions,” 310 CMR 7.70(10)(e)4.d, appears to have been designed solely with energy efficiency measures in mind. That section states that annual emissions reductions are the product of the energy savings resulting from the energy conservation measure, the emissions factor of the fuel used, and the oxidation factor of the fuel used. According to this formula, therefore, if the use of a renewable fuel does not result in energy savings, there will be no offset awarded – *even if the fuel switch results in a substantial reduction of CO<sub>2</sub> emissions*. This design makes little sense as a matter of policy and is difficult to reconcile with the plain terms of the proposed regulation, 310 CMR 7.70(10)(e)4.a.i.(vii).

H2Diesel urges the Department to modify this formula or promulgate a new formula that awards offset allowances for switching to less carbon-intensive fuels. Consistent with the methodology currently in place, the Department could calculate the emissions reductions by subtracting from the emissions baseline (as calculated in 310 CMR 7.70(10)(e)4.c) the emissions generated using the new fuel; that is, the product of the adjusted post-installation energy use by fuel type, the emissions factor of the new fuel, and the oxidation factor of the new fuel.

### **III. Conclusion**

H2Diesel is developing a biofuel technology that it believes can produce deeper CO<sub>2</sub> reductions at lower prices than traditional biofuels. To justify its continuing investment, H2Diesel seeks clear rules enabling those who use their product to receive benefits commensurate with the CO<sub>2</sub> emissions they have reduced.

Thank you for the opportunity to comment on this important issue.

Respectfully submitted

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